



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,904	04/01/2005	Masashi Ueda	269021US2PCT	5287

22850 7590 04/29/2009
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MILLER, JR, JOSEPH ALBERT

ART UNIT	PAPER NUMBER
----------	--------------

1792

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

04/29/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/529,904	Applicant(s) UEDA ET AL.	
	Examiner JOSEPH MILLER JR	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 5,6, 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-15 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/11/2007, 04/02/2007, 04/20/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-4 and 7-10 in the reply filed on 04/08/2009 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4 and 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, 2, 7 and 8 recite the limitations "the first end", "the first linear conductor", "the first end of the second linear conductor". There is insufficient antecedent basis for these limitations in the claim.

Claims 1 and 7, the "comparable" renders the claim indefinite because it is unclear exactly what this means. The term will be examined in the broadest possible interpretations.

Claims 2 and 8 recite the limitation "said substrates". There is insufficient antecedent basis for this limitation in the claim.

Regarding claims 2 and 8, for examination purposes, claims will be interpreted in light of claims containing the "installing" limitation included in claims 1 and 7, as supported by the specification.

Claim Objections

Claims 4 and 10 are objected to under 37 CFR 1.75(c) as being in improper form because any dependent claim which refers to more than one other claim (“multiple dependent claim ”) shall refer to such other claims in the alternative only. See MPEP § 608.01(i). Accordingly, the claims 4 and 10 not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 1792

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ueda (WO01/19144, 6,719,876 used as translation).

Ueda teaches using an array of electrodes to perform a film deposition (col 10, line 52- col 11, line 18). Ueda teaches that the electrodes function as antennas (col 5, lines 60-68) because the function of the electrodes meets the definition of an antenna, the electrodes therefore *are* antennas (there is no further definition of “antenna” that would prohibit such interpretation). The electrodes are comprised of two linear conductors (connected by a u-shape) (Figs. 1 and 3), one end (“second end of first linear conductors”) of each (15 in Fig. 3) being connected to a high frequency generator

Art Unit: 1792

(col 6, lines 23-36) and the "second end of the second linear conductors" being commonly grounded (col 11, lines 10-15).

Ueda further teaches multiple substrates arranged between multiple layers of the electrode (i.e. antenna) arrays (col 12, lines 17-64; Figs. 4 and 5).

Regarding the claim limitation that the distance between the substrates and arrays are "comparable" to the space between the linear conductors, the word "comparable" imparts no metes and bounds on the exact distances, however, it could be argued firstly that, whatever the distances/spaces, they are inherently "comparable", secondly, Ueda teaches that the electrodes are formed with the same L2 (col 12, lines 16-40 and col 7, lines 12-51) and depicts (Fig. 5) substrates that are spaced evenly, therefore the fact that the elements (substrates and linear conductors) are spaced evenly would make the defined spacings "comparable" in a broad sense of the term.

In alternative, it would have been obvious to someone of ordinary skill in the art at the time of the invention to space the substrates from the arrays at a distance comparable to the spacing between the linear conductors based on the dimensioning of the conductors. The conductors are formed such that there is a distance L2 between conductors based upon the wavelength and frequency applied (col 7, lines 12-55), in order to create a uniform plasma density in the space between the electrodes. Since the arrays are aligned in parallel in the embodiment taught, it would be obvious to carry over this same principal to create a uniform plasma between the electrodes of different arrays, therefore it would be obvious for the distances/spaces named to be comparable.

Regarding claim 7, all elements are taught as described above; additionally, Ueda teaches that such a deposition may be applied to a solar cell (col 4, lines 52-55).

Claims 2, 3, 8 and 9 are rejected under 35 U.S.C. 103(a) as obvious over Ueda (WO01/19144, 6,719,876 used as translation) as applied to claims 1 and 7 above (pertaining to claims 3 and 9, respectively) and in further view of Takagi (WO 01/088221, 2004/0020432 used as translation).

The teachings of Ueda are described above. Ueda teaches the use of a chamber including antenna elements as electrodes used to generate a plasma to deposit a film on multiple substrates, but is silent on the process temperature.

Takagi teaches a plasma CVD apparatus where a number of electrode arrays (as shown in Figure 5; [0060-0063]) are arranged in a determined interval as shown in Figure 6 [0064-0066]. A plurality of substrates (items 11 in Fig. 6) is arranged on both sides and parallel to the electrode.

Takagi teaches an example of depositing an amorphous silicon film for use in a solar cell [0003; 0068-0070]. Takagi teaches an example where a deposition pressure of 1 Pa is used to deposit such a film [0070].

It would have been obvious to someone of ordinary skill in the art at the time of the invention to apply the use of a pressure of 1 Pa (or in that area) to deposit an amorphous silicon film for a solar cell as taught by Takagi to the solar cell deposition method of Ueda as one could apply such a pressure with a reasonable expectation of

Art Unit: 1792

producing a film that would be viable for use in producing a solar cell. Ueda teaches specific interest in the production of amorphous silicon films (col 1, lines 6-14).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fukuda (2001/0008171) teaches a plasma process where the plasma is created by antennas formed by several linear conductors in the process chamber (abstract).

Gillery (3,907,660) teaches the use of reciprocation of a substrate to improve the uniformity of a deposited film.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571) 270-5825. The examiner can normally be reached Mon - Fri, 7am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1792

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/JOSEPH MILLER JR/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792